

REMARKS/ARGUMENTS

Reconsideration and favorable reconsideration in light of the above amendments and the following comments are respectfully requested.

Claims 1 - 4, 6 - 8, 28, and 31 - 43 are pending in the application. Currently, claims 1, 2, 4, 6 - 8, 26, 32 - 34, 40, 42, and 43 stand rejected; claims 3 and 41 stand objected to; and claims 31 and 35 - 39 stand allowed.

By the present amendment, claims 1 - 3, 7, 32, and 41 have been amended and claims 44 - 46 have been added to the case.

In the office action mailed January 7, 2005, claims 1, 2, 4, 6 - 8, 26, 32 - 34, 40, 42, and 43 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,533,284 to Aksit et al. in view of U.S. Patent No. 5,106,104 to Atkinson et al.

The foregoing rejection is traversed by the instant response.

The present invention broadly relates to a multiple stage brush seal adapted to restrict a fluid flow through a gap between a first component and a second component of a gas turbine engine. The multiple stage brush seal comprises a body, a plurality of brush packs secured to the body, and a plurality of passageways through the body for introducing a cooling flow to the gap. The passageways each having a first end that is exposed to the gap and corresponding to a respective one of the brush packs, and a second end that is not exposed to the gap. Each stage of the brush seal includes at least one of the plurality of passageways. The second end comprises a fluid inlet and communicates with an outlet of a fluid line which extends through the first component and which communicates with a source of fluid.

Claim 1 as amended herein is allowable because neither Aksit et al. nor Atkinson et al. teaches or suggests the combination of a passageway in each stage having an inlet at a second end remote from the gap which communicates with an outlet of a fluid line which extends through the first component and which communicates with a source of fluid. As the Examiner is aware, Atkinson et al. is totally silent on the issue of supplying cooling air to a brush seal gap. Aksit et al., while teaching supplying cooling air to a gap, does not have a plurality of fluid lines in the first component having an outlet which communicates with an inlet of a passageway in each stage. Aksit et al. teaches using a single plenum as the source of cooling air.

All of the claims which depend from claim 1 are allowable for the same reasons as claim 1 as well as on their own accord.

Claim 32 calls for in combination, a first component having a plurality of passageways extending therethrough, and said passageways receiving fluid from a header in said first component; and a multiple stage brush seal adapted to restrict a fluid flow through a gap between said first component and a second component. The brush seal comprising a body, a plurality of brush packs secured to said body, and a plurality of passageways through said body for introducing a cooling flow to said gap, said passageways each having a first end that is exposed to said gap and corresponding to a respective one of said brush packs, and a second end that is not exposed to said gap. Each of said passageways of said first component is in communication with a respective one of said second ends of said passageways of said brush seal.

It is submitted that neither Atkinson et al. or Aksit et al. teach or suggest the foregoing combination of elements. As

stated before, Atkinson et al. is totally silent on the issue of supplying cooling air to the gap of a brush seal. Aksit et al. does not teach or suggest a plurality of passageways extending through the first component and communicating with a header where each of the passageways is in communication with a respective one of the second ends of the brush seal passageways. The passageways in the body in Aksit et al. communicate with a flow of air directly from a plenum.

The claims which depend from claim 32 are allowable for the same reasons as claim 32 as well as on their own accord.

Claims 44 - 46 are believed to be allowable because neither Aksit et al. nor Atkinson et al., taken individually or collectively, teach or suggest the combination of elements set forth in the claims. In other words, neither Aksit et al. nor Atkinson et al., taken individually or collectively, teach or suggest a system comprising a brush seal having a body, a brush pack secured to the body, which body includes a backing plate and a side plate having a portion spaced from the brush pack and forming a gap therewith, an engine component having means for introducing a cooling fluid into the gap, and the brush pack having a first end which contacts the body and a second end which contacts a surface of the engine component. Claims 45 and 46 are allowable for the same reason as claim 44 as well as on their own accord. For example, neither Aksit et al. nor Atkinson et al. teaches the fluid introducing means comprising a passageway in the second component in communication with a cooling fluid source in combination with the elements of claim 44.

By the present amendment, claims 3 and 41 have been placed into independent form and are now allowable.

For the foregoing reasons, the instant application is believed to be in condition for allowance. Such allowance is respectfully solicited.

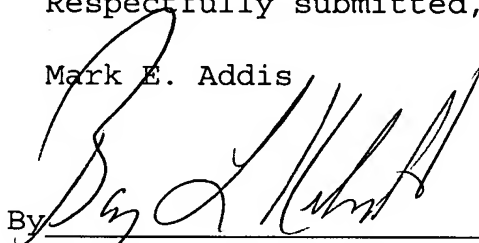
Should the Examiner believe an additional amendment is needed to place the case in condition for allowance, he is hereby invited to contact Applicant's attorney at the telephone number listed below.

A fee in the amount of \$600.00 is believed to be due as a result of this response. The Director is hereby authorized to charge said fee to Deposit Account No. 21-0279. Should the Director determine that an additional fee is due, he is hereby authorized to charge said fee to said Deposit Account.

Respectfully submitted,

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By


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I, Nicole Motzer, hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313" on August 9, 2005.

